REPRODUCE THIS PAGE FOR YOUR STUDENTS

Resources

Energy efficiency is more than just an idea—it's a smart way to save money and help our state through the current electricity shortage. This Resources page is a starting place to inspire students and their families, as well as your school, to make saving energy part of their daily lives. There are many wonderful resources available through state government, your local utilities, and the Web to help you teach energy conservation. Here are a few suggested activities to do and Web sites to visit.

Check Out Energy Quest: an award-winning student, teacher and parent Web site that brings together energy information, games, and science projects on topics ranging from renewable energy to fossil fuels to conservation and safety for grades 3–8. If it's about energy, it's all here. **www.energy.ca.gov/education**

- **The Energy Story** walks you through what energy is and how it's generated.
- **Devoured by the Dark** is a Goosebumps®-like energy adventure story for children.
- **Science Projects** help students investigate simple energy concepts with hands-on experiments.
- **Watt's That?** Meet your host, Flip Switch, in a game show that tests your energy knowledge.

FOR TEACHERS:

- **National Energy Information Center**—an extensive list of energy education Web sites with information on free or low-cost energy-related educational materials. **www.eia.doe.gov**
- **Alliance to Save Energy**—describes energy conservation activities and the Green Schools Project. **www.ase.org**
- **Energy Efficiency and Renewable Energy Network (EREN)**—students and consumers will appreciate finding information about everything from alternative energy sources to energy-efficient appliances. **www.eren.doe.gov**
- **Learning Adventures in Citizenship**—this PBS activity asks students to consider several things: the importance of electricity and energy in their lives, the costs of that energy, and the importance of conserving energy. **www.pbs.org**

FOR KIDS:

- **How Stuff Works** provides more than you ever wanted to know about everything related to science, including power plants and solar cells. **www.howstuffworks.com**
- **On the Web Conserving Energy**—this is a kid-friendly site that provides energy-saving tips and other information. **www.pgweb.com/~wieler/**
- **Bill Nye the Science Guy**—a great site for all types of science information, including books, resources, and fun facts. **www.billnye.com**
- **Watts on Your Mind**—a fun site that includes an illustrated story, an energy-waster hunt and a teacher's activity section. **www.wattsnew.com**

Flex Your Power: This is the Governor's energy Web site. Go here to find energy-saving ideas, rebates for energy-efficient products, answers to questions, and more. **www.flexyourpower.ca.gov**

California Energy Commission: This is a consumer energy site to assist Californians in saving electricity and money at work and at home. **www.consumerenergycenter.org**

Additional On-Line Resources

California Department of Education—Office of Environmental Education
This is the office in Sacramento that oversees the Environmental Education Grant Program and coordinates K–12 curricular and program efforts. The California Regional Environmental Education Community (CREEC) is also administered through this office. **www.cde.ca.gov/cilbranch/oee/**

California Regional Environmental Education Community (CREEC Network)
The CREEC Network is a statewide network that provides extensive resources to educators interested in environmental education. A visit to the site will provide access to electronic resources, a calendar of events, and a searchable database. The CREEC Network also offers teachers environmental education on-line discussion groups. **www.creec.org**

1. **Send home family take-home pages.**
2. **Be sure to encourage your students to fill out the family pledge.**
3. **Ask students to return their family pledges to you, and display them in your classroom.**

BE A LEADER—START AN ENERGY PATROL

Many schools in California have established Energy Patrols. Energy Patrols can help schools save electricity and money. Energy Patrol members check to make sure lights and equipment in unoccupied rooms are turned off and windows are closed. The Energy Patrol can also help develop a school energy-saving program, raise money to fund school conservation efforts, or conduct an energy information fair. The Rock Springs Elementary School in Escondido received an Energy Hero award from Governor Davis for their Energy Patrol activities. To find out more about establishing an Energy Patrol visit: www.energy.ca.gov/education/patrol

Answers to Conservation Calculator Quiz: 40,000 CFLs; $156.00; 1,540 MW; $6.00 per month and $72.00 per year; $18.00

TEACHING GUIDE FOR CALIFORNIA EDUCATORS—**4TH, 5TH, & 6TH GRADES**

The Kids'
FLEX YOUR POWER
Energy Challenge

Encouraging conservation—in school and at home!

DEAR EDUCATOR,

As you know, California is facing a shortage of electricity. With that in mind, the State of California has created **The Kids' Flex Your Power Energy Challenge**—an energy awareness activity guide for 4th, 5th, and 6th grade teachers.

This guide is designed to increase students' understanding of key energy conservation strategies. It includes a list of strategies for students to share at home, on-line resources, and a home energy audit homework assignment.

As teachers, you have the power to encourage your students to adopt energy conservation habits that will last a lifetime. Please take time to review these materials and incorporate the lessons into your curriculum.

I thank you for promoting conservation and for your commitment to educating your students.

Sincerely,

Gray Davis

Gray Davis
Governor

Flex your POWER℠

Money Isn't All You're Saving

CURRICULUM CONNECTIONS

Math
- Number Sense
- Mathematical Reasoning

Language Arts
- Reading 2.0 (Reading Comprehension)
- Writing 2.0 (Writing Applications)

Science
- Investigation and Experimentation

Social Studies
- Students will learn to recognize vital connections between the present and the past. (From the general introduction to the standards)

WHAT STUDENTS WILL LEARN: California is facing an electricity shortage. Know the facts about electricity and how to save it!

TIME REQUIRED: One class period.

LESSON NOTES: Discuss electricity topics with your students, including how it is produced and what you can do to save it. Learn about how to use electricity efficiently and conserve it both at school and at home. Create a class plan for saving energy. Check out the "Resources" page for additional classroom activities and electricity saving ideas.

The Kids' FLEX YOUR POWER Energy Challenge

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Know the Facts

Electricity is an important part of our daily lives, and every day Californians use electricity to do many different things. We use electricity to:

- **Keep the lights on**
- **Run washers, dryers, TVs, computers, dishwashers, and refrigerators**
- **Manufacture computers and other products that are produced in our state**
- **Operate traffic signals and garage door openers**
- **Pump water for farmers to irrigate their fields**
- **Cool and heat our homes and schools**
- **Heat hot water for showers and baths**

Name other things that you might use electricity to do during your day.

CALIFORNIA'S ELECTRICITY SHORTAGE

Right now, California is facing an electricity shortage because our population has grown, not enough power plants were built in the past, and we don't conserve as much as we could. Many new power plants are now in the process of being built. To help avoid rolling blackouts, we all must do our part to conserve energy.

BECOME AN ENERGY DETECTIVE!

Kids can make a real difference in helping California save electricity. There are two ways to reduce the amount of electricity you use: one is to save it and not use it (conservation) and the other is to use it smarter or more efficiently.

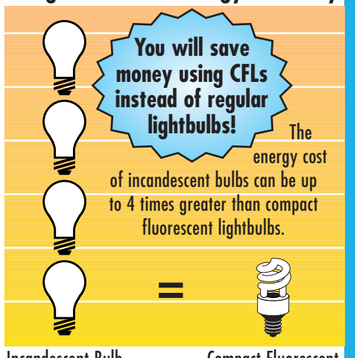
Here's how you save it:

- When it's hot, set the thermostat at 78 degrees or, when it's cold, set the thermostat at 68 degrees.
- Think off-peak. TELL YOUR FAMILY TO USE LESS ELECTRICITY BETWEEN 4 AND 6pm (these are peak hours).
- Keep your cool by using a floor fan instead of air conditioning.
- When it's hot, close drapes and shades during the day to keep the heat out and the cool in. When it's cold, open the drapes and shades and let the sun in to warm your house or school.
- Turn off lights in empty rooms and TVs, computers, and stereos when not in use.

Here's how you use it smarter:

- Decide what you want for a snack before opening the refrigerator.
- Shorter showers save hot water and energy, too!
- Run the dishwasher off-peak and only when full.
- Do full loads of laundry using cold water, if possible.
- Do a home and/or school energy audit.
- Start an Energy Patrol at your school.
- Replace regular lightbulbs with compact fluorescent bulbs.

Using CFLs Saves Energy & Money



Incandescent Bulb — Compact Fluorescent Lightbulb (CFL)

FAST FACTS

Compact Fluorescent Lightbulbs (CFLs)
Regular incandescent lightbulbs use a lot of electricity. CFLs are energy-efficient. They use much less electricity, burn brighter, and last longer. With the power it takes to light one regular incandescent lightbulb, you can light 4 CFLs.

ENERGY STAR®
A federal program that identifies washers, refrigerators, dishwashers, TVs, computers and other products that use less energy. Products that have the Energy Star label use at least 20 percent less electricity than products that do not have the label.

Money Isn't All You're Saving

Megawatt
A measure of electricity (1,000 kilowatts). A megawatt is enough electricity to power 1,000 homes.

Peak Hours
The time of day when most people use electricity (usually between 4pm and 6pm). At peak during the summer, Californians may use as much as 56,000 megawatts of power.

Power Grid
The system of transmission lines that carry electricity from power plants to homes, businesses, and schools. California has about 32,545 miles of transmission lines.

Rolling Blackouts
Rolling blackouts happen when there's too much demand for electricity and not enough supply. Rolling blackouts occur as planned events. Power companies turn off the electricity in a neighborhood for about an hour and then turn it back on again. Then the power companies move to the next neighborhood and turn off the electricity. Rolling blackouts are a way to save electricity, so no one has to be without it for long periods of time.

WHAT STUDENTS WILL LEARN: These activities will help your students better understand how to save electricity, using math, language arts, and social science lessons.

TIME REQUIRED: One class period per activity.

LESSON NOTES: You can use one, two, or all of these activities with your class. The first and second activities may be done in-class, individually, or in groups. The last activity is an individual take-home interview project. Have your students share their results.

The Kids' FLEX YOUR POWER Energy Challenge

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The Kids' FLEX YOUR POWER Conservation Calculator

How much energy and money can you save? Figure it out.

THE USUAL WAY	THE WAY TO SAVE	FIGURE IT OUT	YOUR SAVINGS
One megawatt (MW) will power 10,000 regular 100 watt lightbulbs.	Four compact fluorescent lightbulbs (CFLs) use the same amount of electricity as one ordinary lightbulb.	How many compact fluorescent lightbulbs can a megawatt of electricity power?	
It costs about $13 per month to run one refrigerator. You have two refrigerators.	You recycle one refrigerator.	How much money can you save in a year?	
During the summer, most Californians set their home air conditioning thermostats at 74 degrees.	For every two degrees Californians raise their thermostat setting, California saves 770 MW (enough electricity to power 770,000 homes).	If all homes in California raise their thermostats from 74 degrees to 78 degrees, how much electricity could the state save?	
It costs about $.50 to dry 1 load of laundry. You do 6 loads a week.	Hang your laundry up to dry 50% of the time instead of using the dryer.	If there are four weeks in a month, how much can you save in one month? One year?	
It costs about $9.00 per month to run a TV. You have three TVs.	You turn off 2 TVs.	How much can you save in one month?	

Creative Conservation

What would you do if there was no electricity? Write a short story that tells how you and your family would manage to do all the ordinary things you do without electricity! Use this chart to help you organize your thoughts and your writing. Share your work with your class.

TIME OF DAY	1ST LINE OF PARAGRAPH	HOW WOULD YOU...	I WOULD...
Morning	When I woke up, my alarm clock was blinking. The power had gone out!	Take a shower? Fix breakfast? Get to school?	
Afternoon	It was lunchtime. Was the cafeteria open? What about entertainment—no PlayStation® or TV.	Eat lunch? Go to class? Have fun with friends? Read a book? Play games?	
Evening	I wondered what we'd eat for dinner with no stove or refrigerator.	Fix dinner? Do homework? Walk the dog?	
Night	It had been a long day.	Get ready for bed? Wind the alarm clock?	

It's Up to All of Us

Throughout history, both individuals and government have taken steps to conserve energy.

Did you know...

- Benjamin Franklin was one of the first to think creatively about conserving energy. In 1794, he proposed moving clocks forward in the summer to save energy. (Getting up earlier and going to bed earlier reduces the amount of electricity that most people use.)
- During both World War I and World War II, the U.S. Congress adopted Daylight Savings Time to conserve energy for the war efforts. During World War II, some creative English government officials thought of a way to save even *more* energy, and introduced Double Summer Time, putting all the clocks two hours ahead.

Many people, due to circumstance or the time in which they grew up, lived with little or no electricity. Interview family members, friends, or neighbors who may come from another city or country to see what their experience has been.

(Check with your parent or guardian before interviewing.)